

The Importance of Expression Production and Presentation on Authenticity Discrimination

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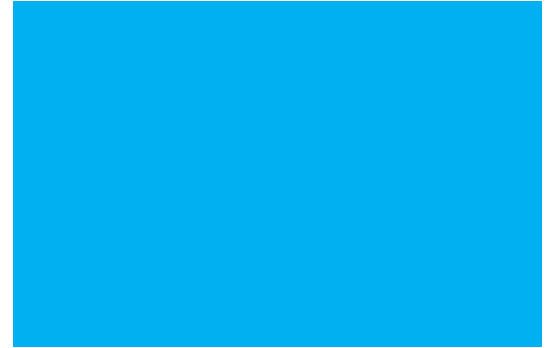
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Genuine and “Posed” Expressions

How are non-genuine emotional displays perceived?

How convincing are posed emotional expression?

What factors influence these judgments?



People are very good at classifying emotional facial expressions (Ekman, 2003).

But, deception research has shown that people are bad at detecting liars or truth-tellers based on their emotions (DePaulo, et al., 2003)

Additionally, little is known about how well people determine if an emotion is “posed” or real (e.g. Krumhuber, Likowski, & Weyers, 2014)

Can people identify real from fake emotions?

“Posed” Expression/s?

- Many studies claim that there are differences in emotional perception between “genuine” and “posed” expressions.
- However, many rely on specific claims about facial expressions and underlying affect (i.e. the emotion)
- Few are designed to make directional claims.
- Namely, having only 2 categories in the stimuli is not informative – nor does it reflect reality
 - How we operationalize expressions matter! (as we will see shortly)

Behavioural Differences? Reliable Behaviour?

Blind athlete



Sighted athlete



Comparison of Blind and Sighted athletes who just lost a match for a medal



Non-Duchenne Smile



Duchenne Smile

HOWEVER:

1. Studies finding no such reliable muscles (e.g., Krumhuber & Manstead, 2009)
2. Research finding that authenticity discrimination is poor (e.g., Hess & Kleck, 1994)



Term confusion ???

Posed

Deliberate

Fakes

Deceptive

Voluntary

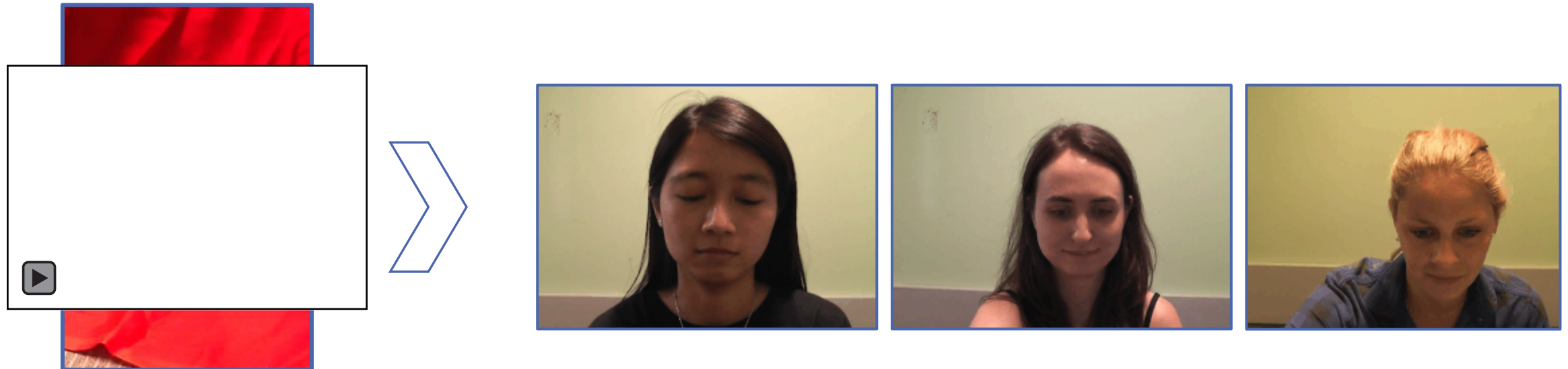
Non-genuine



Deceptive Emotions

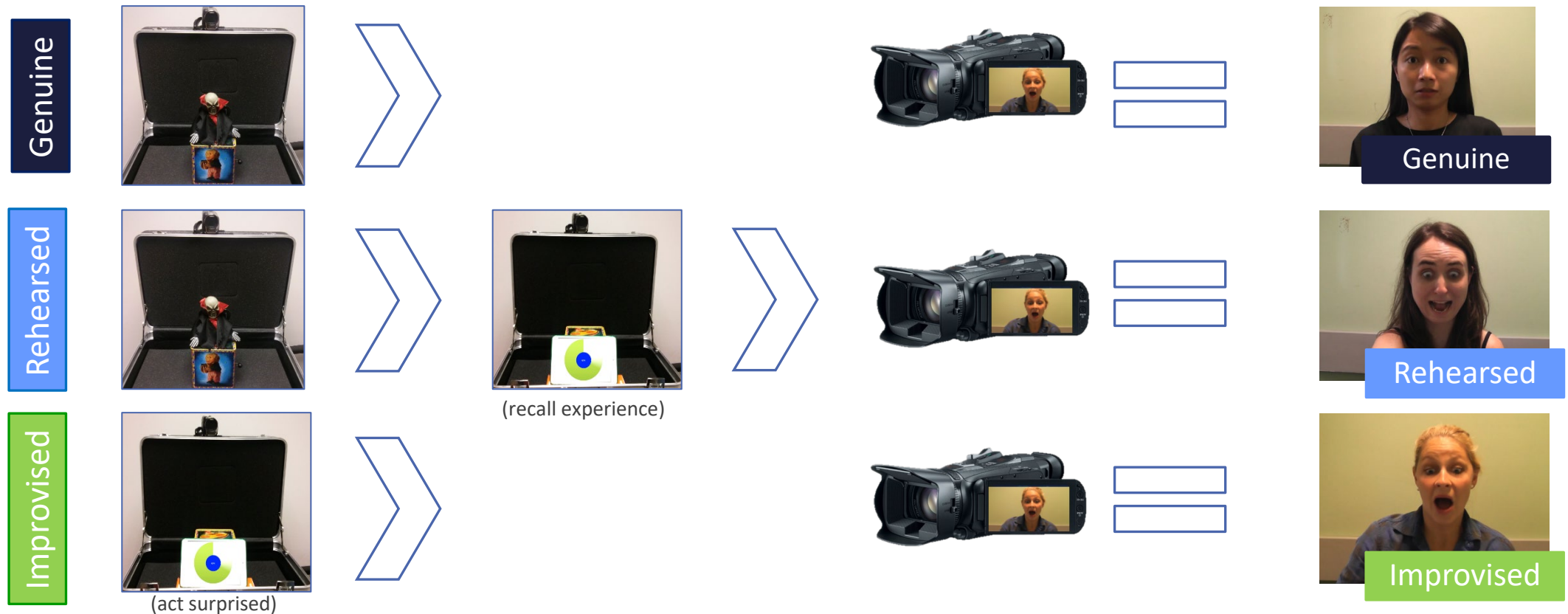
Can individuals detect *genuine* from *deceptive* emotional cues (i.e. **authenticity discrimination**)?

Can senders produce *genuine-looking* expressions which can 'fool' decoders?



Method

Stimuli Creation - 13 videos were created for each condition



Method

Participants: 43 participants (23m), $M_{\text{age}} = 29.5$ ($SD = 7.5$)

Design: Within-subjects

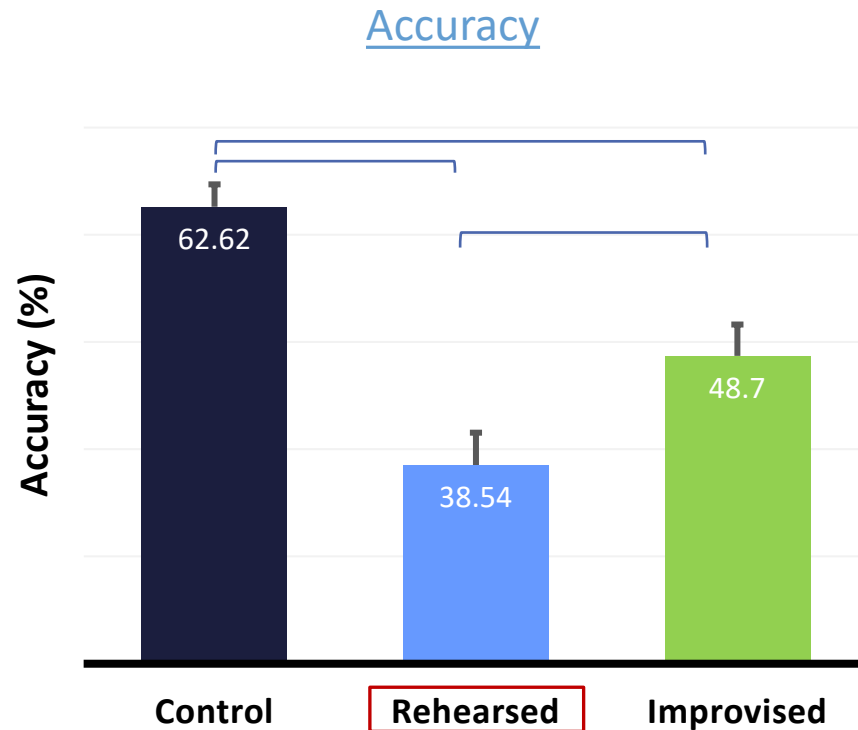
IV: Genuine, Rehearsed and Improvised

DV: Accuracy, Genuineness, Expression Intensity, and Confidence

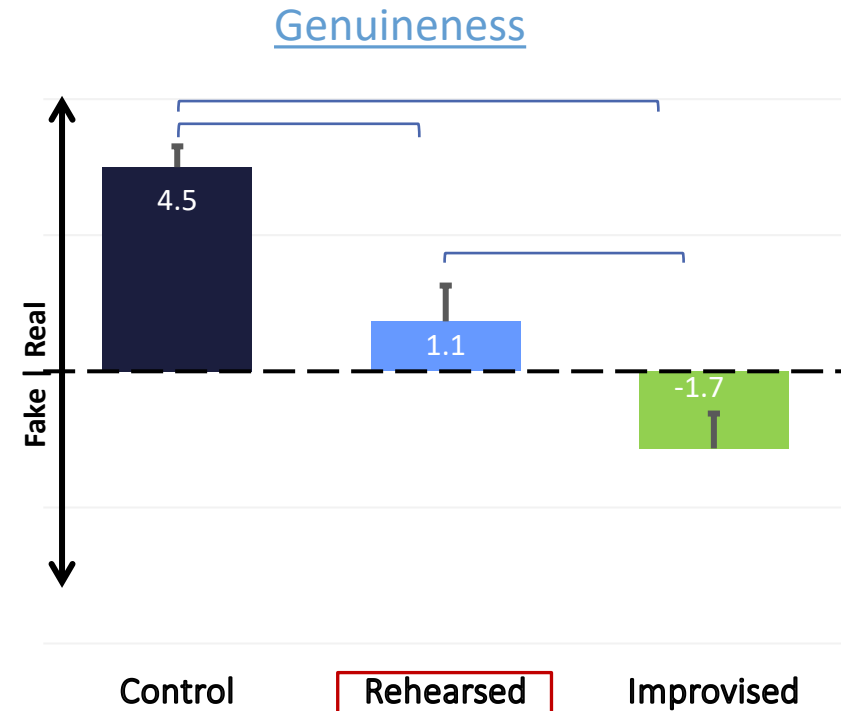
Procedure: Decoders watched all the videos and rated the expressions

Findings

Rehearsed expressions were *harder* to classify as fake

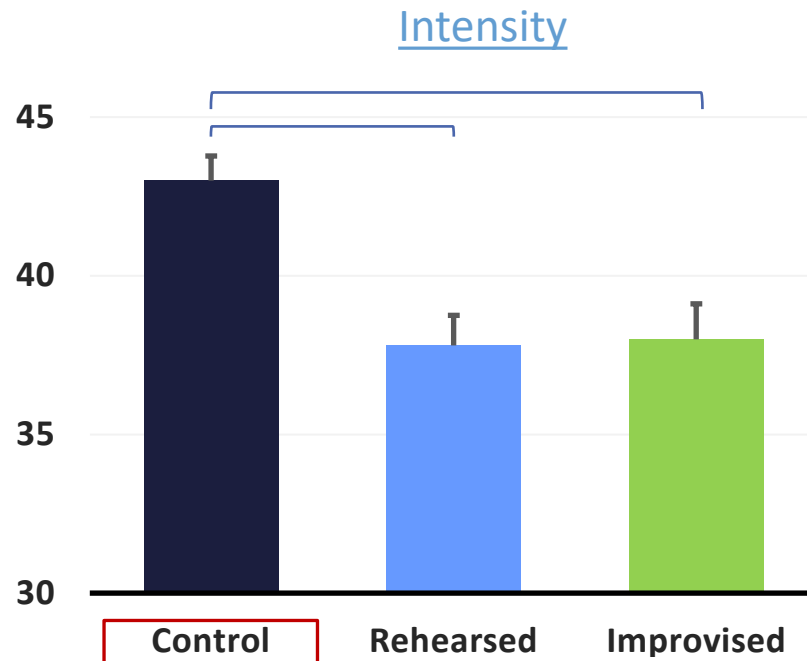


Rehearsed was rated as *more* genuine.
Both fake conditions were rated as *less* genuine than **Control**

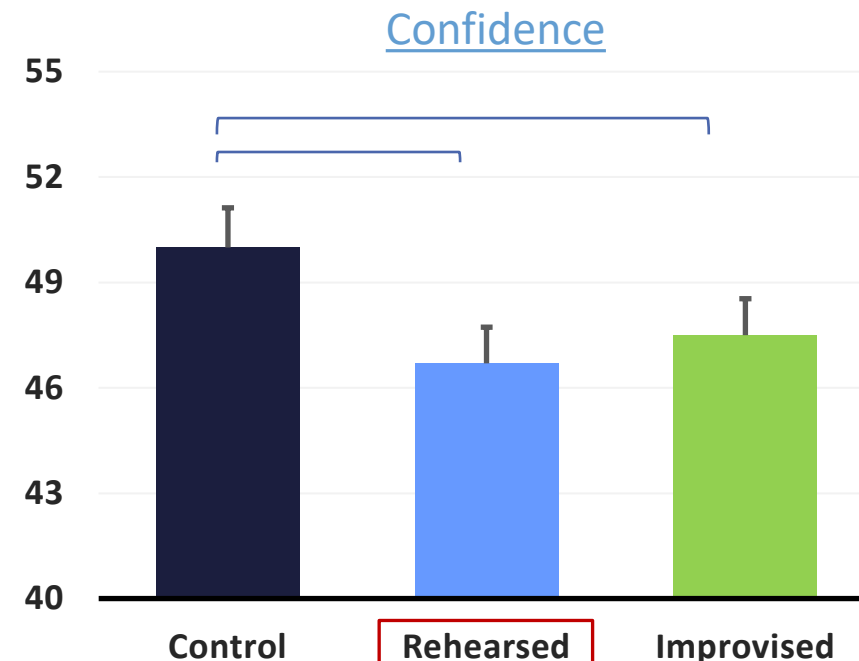


Findings

Rehearsed and **Improvised** were rated equally expressive
Both were rated less expressive than the **Genuine** surprise



Lower confidence for **Rehearsed** and **Improvised** expressions
No difference in confidence between the two fake conditions



Dynamic vs Static Expressions

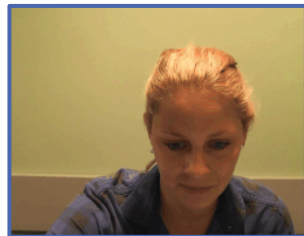
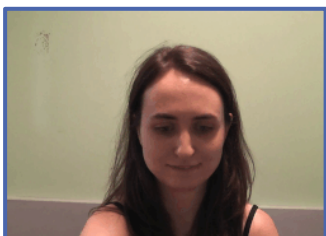
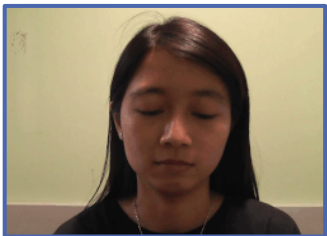


Detecting Genuine and Deliberate Displays of Surprise in Static and Dynamic Faces

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2 ¹University College London, Department of Computer Science

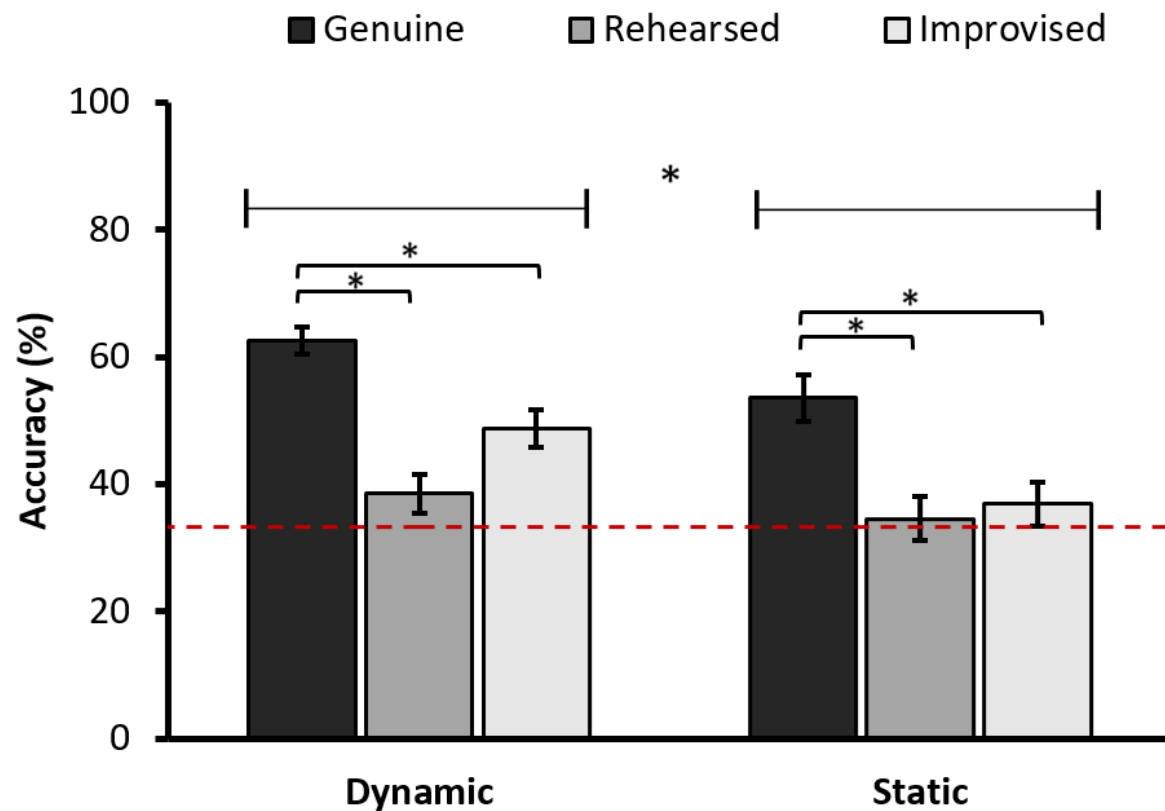
3 ²University College London, Department of Experimental Psychology



VS



Accuracy



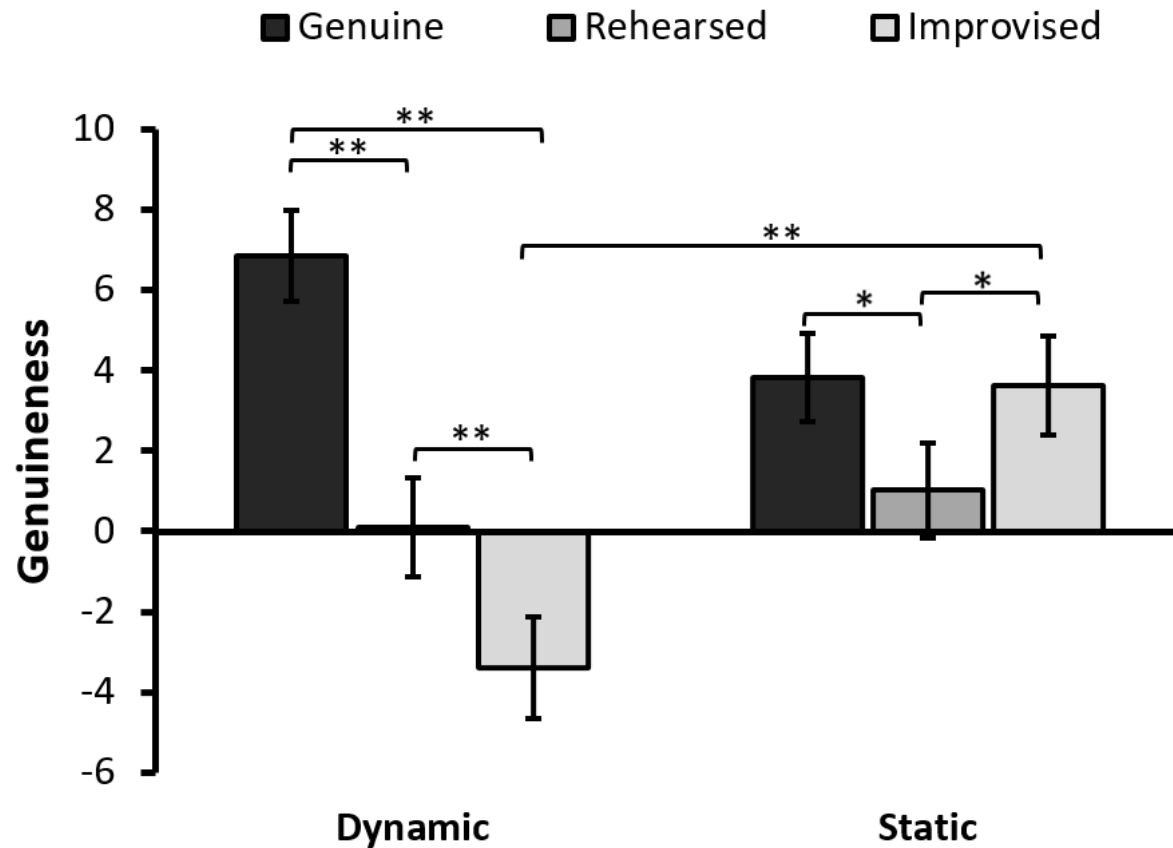
Presentation Format

- $\text{Dynamic}_{\text{ACC}} > \text{Static}_{\text{ACC}}$ ($M_{\text{diff}} \approx 10\%$)

Expression Condition:

- $\text{Genuine} > \text{Rehearsed} = \text{Improvised}$

Genuineness



Dynamic Condition:

- Genuine > Rehearsed | Improvised
- Improvised < Rehearsed

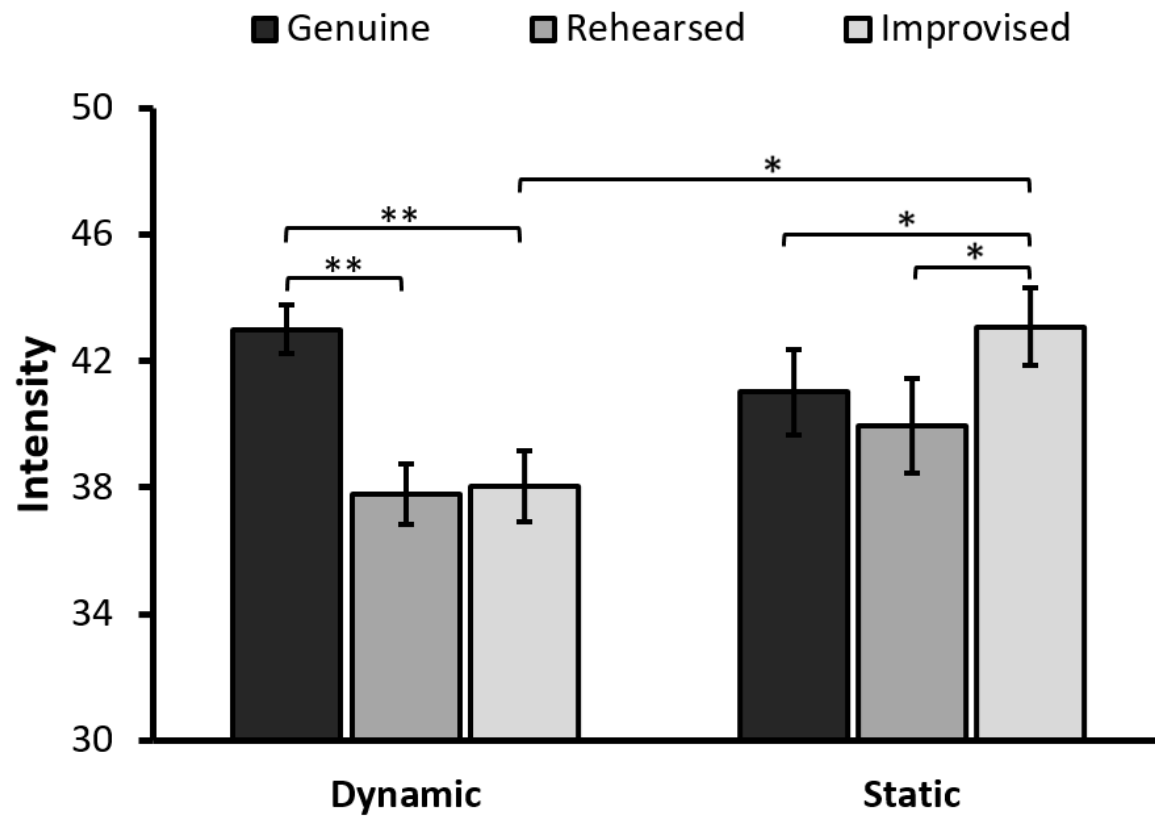
Static Condition:

- Genuine > Rehearsed
- Improvised > Rehearsed
- Genuine = Improvised

Dynamic v Static:

- Improvised Static < Improvised Dynamic
- Genuine Static = Genuine Dynamic
- Rehearsed Static = Rehearsed Dynamic

Intensity



Dynamic condition

- Genuine > Rehearsed | Improvised
- Rehearsed = Improvised

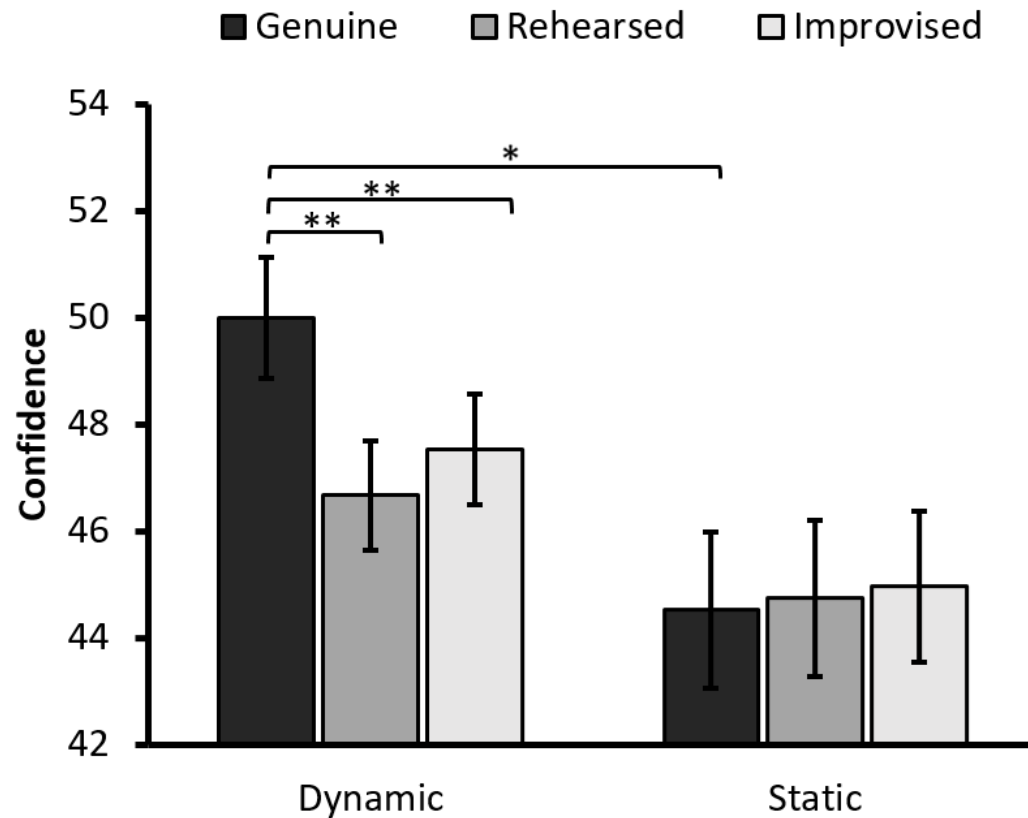
Static Condition

- Genuine < Improvised
- Genuine = Rehearsed
- Improvised > Rehearsed

Dynamic v Static

- $\text{Improvised}_{\text{STATIC}} > \text{Improvised}_{\text{DYNAMIC}}$

Confidence



Dynamic Condition

- Genuine > Rehearsed | Improvised
- Rehearsed = Improvised

Static Condition

- Genuine = Rehearsed = Improvised

Dynamic v Static

- $\text{Genuine}_{\text{DYNAMIC}} = \text{Genuine}_{\text{STATIC}}$

Dynamic vs Static Expressions

Presentation Format matters - Dynamic leads to superior (more nuanced, and clearer) judgment differences

Production method matters - using the umbrella term of “posed” expressions in research will lead to unclear, conflicting, and misleading effects

Accuracy – People show some ability to detect genuine emotional expression, but this is not great. The type of deceptive expression can affect authenticity discrimination.

Rehearsed expressions were the most convincing “genuine-looking” expressions, i.e. it is easy to fake emotional expressions.

Dynamic Emotions: Short vs Long

Story so far:

Presentation Format matters - *Dynamic leads to superior (more nuanced, and clearer) judgment differences*

Full-length (S1-2) vs Thin-slice

80 videos.

IV: Presentation Format (Full vs Short)

IV: Expression conditions (Genuine, External, Improvised, Rehearsed)

So, 20 edited videos from the Rehearsed condition (10 full and 10 short), etc. The duration of the full videos was 8-12sec; The short videos were between 1-3sec.

DV: genuineness, accuracy, intensity, confidence

$N = 44$ (28 males, $M_{age} = 30.89$, $SD = 8.86$)

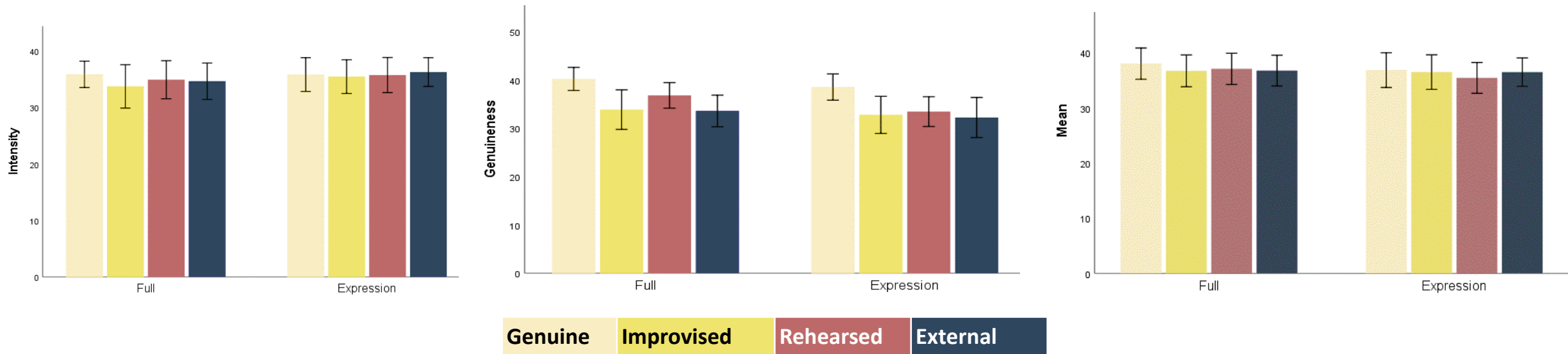
Dynamic Emotions: Short vs Long

Full vs Short

2 (**Video Format**: full vs. thin slice) x 4 (**Expression**: genuine , improvised , rehearsed, and external)

No significant differences on any measures for **Video Format**!

-Intensity; Genuineness; Accuracy; Confidence





Internal vs External

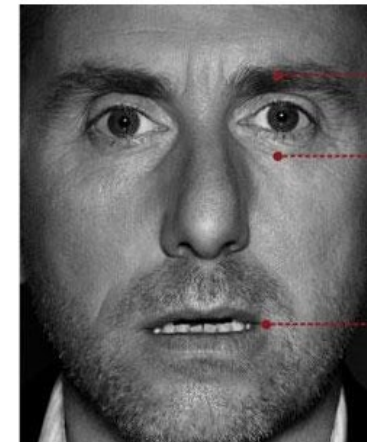
Which aspect of the previous experience with the emotion was relevant to successfully recreating the emotional expression on command?

Hypothesis: Experiencing the internal sensation of surprise versus its external appearance will affect how the faked expression is perceived

Internal



External



surprise

Lasts for only one second:

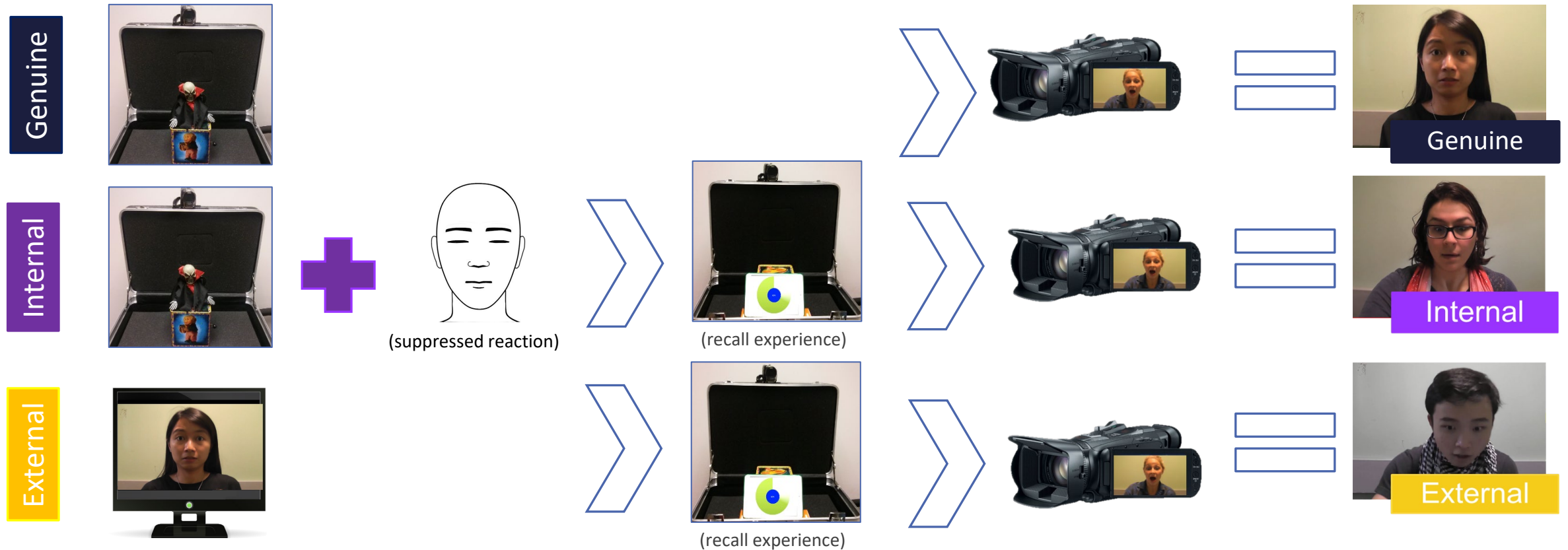
① eyebrows raised

② eyes widened

③ mouth open

Method

Stimuli Creation - 13 videos were created for each condition



Method

Participants: 50 participants (36f), $M_{\text{age}} = 25$ ($SD = 7.2$)

Design: Within-subjects

IV: Genuine, **Internal** and **External**

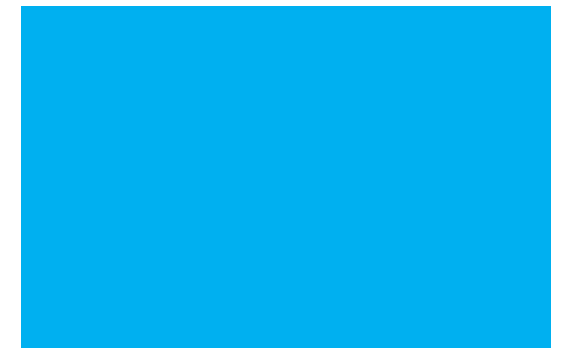
DV: Accuracy, Genuineness, Intensity, and Confidence

Procedure: decoders watched all the videos and rated the expressions

Stanislavski's system

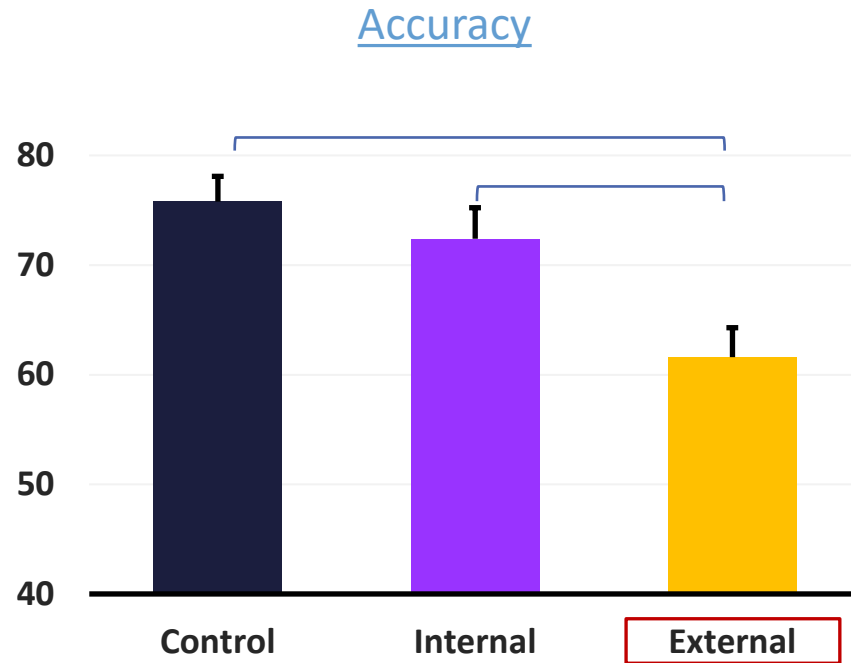


Mimic method

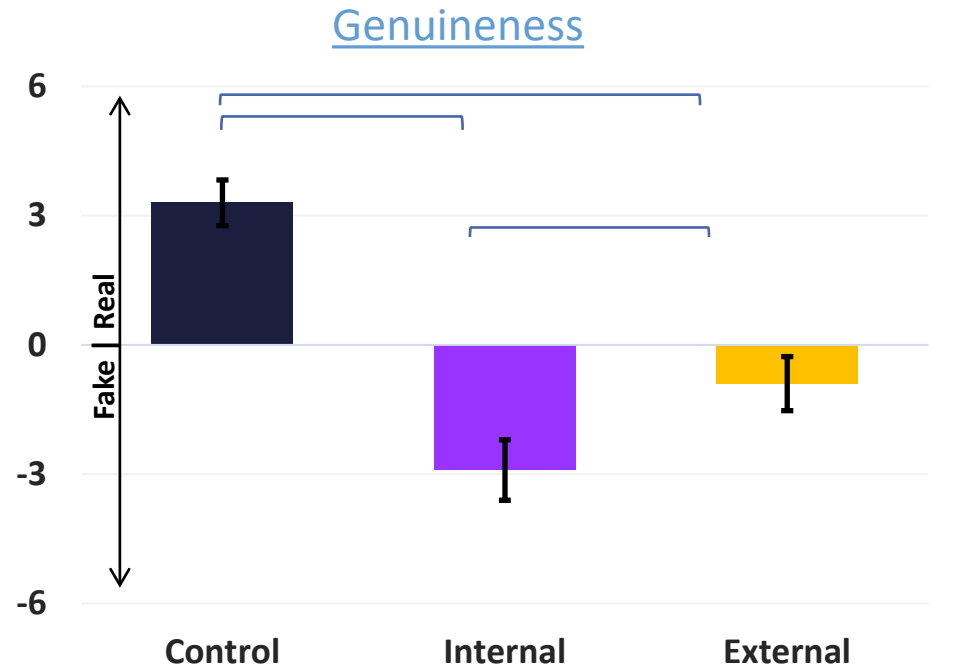


Findings

External surprise was also *harder* to accurately identify as faked or real



External surprise > **Internal** surprise
Both fake conditions were rated as **less** genuine than **Genuine** surprise

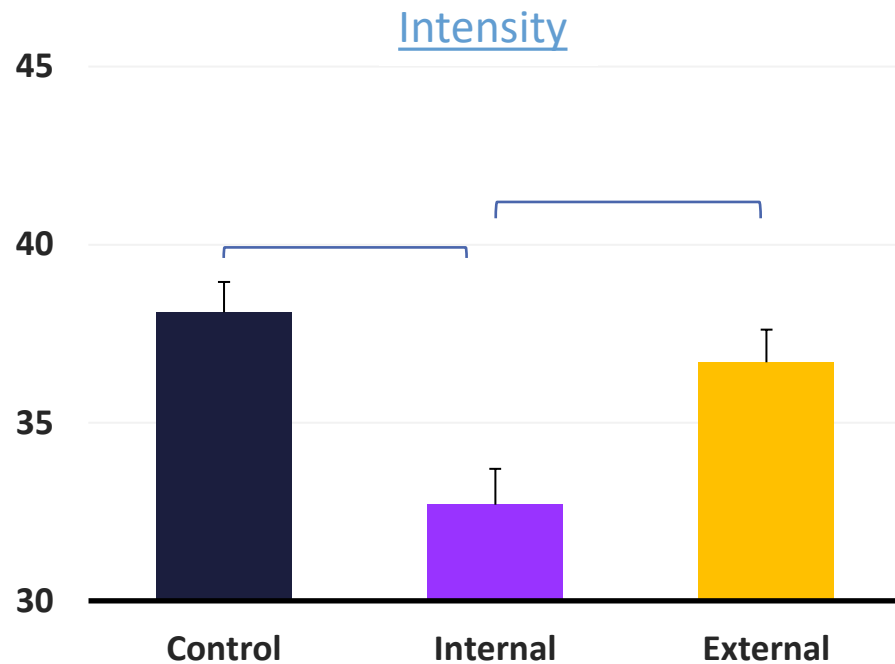


* $p < .05$

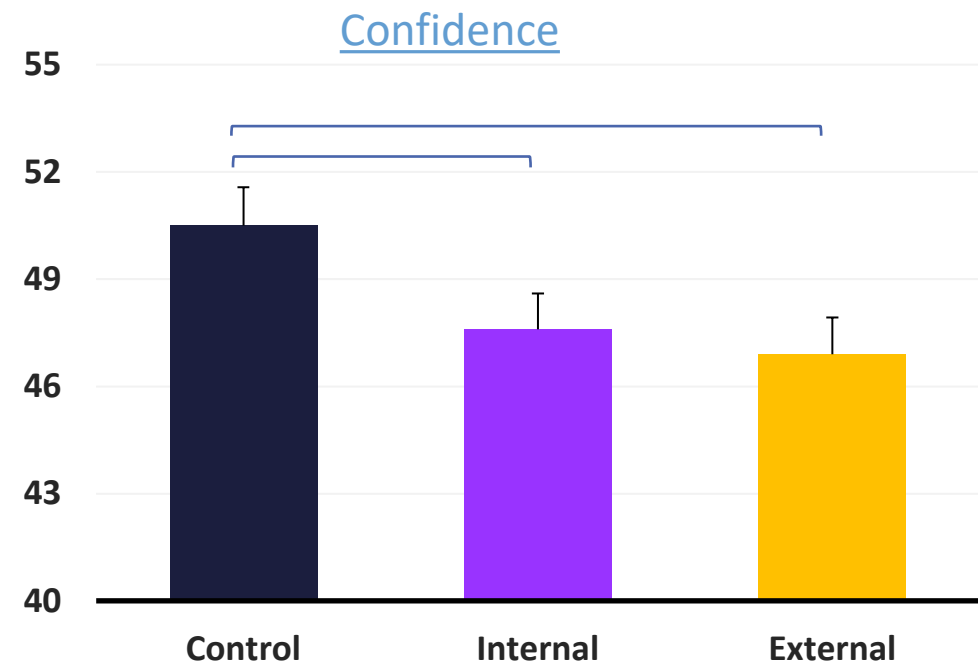
Findings

External surprise was rated as more expressive than **Internal** surprise

External surprise was rated as expressive as **Genuine** surprise



Observers were *less* confident they were correct in their decisions for both **Internal** and **External** conditions



Conclusions so far

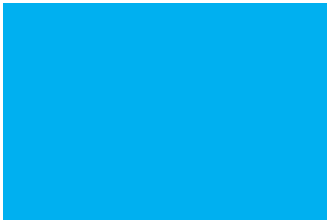
- **Study 1:** Having recent experience with actual surprise allows individuals to convincingly fake the emotional expression
- **Study 2:** Knowing what a genuine emotional expression looks like (External) is better for producing a genuine-looking deceptive expression (i.e. Mimic method is superior to Stanislavsky)

Overall, there seem to be observable differences between real and fake emotional displays, but these can be diminished using simple techniques

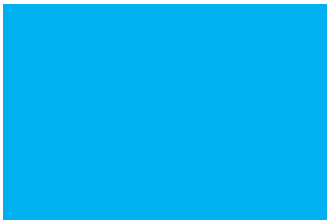
Ongoing & Future Projects:



Dynamic Expressions Database — *Behavioral Research Methods*
(Zloteanu, Ong, Krumhuber & Richardson, in progress)



Chapter: Deceptive Emotional Control — *Handbook of Facial Expressions of Emotion Vol.3*
(Zloteanu, Krumhuber & Richardson, in prep.)

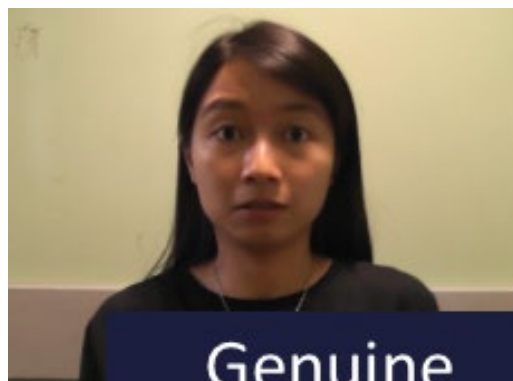


Automatic Authenticity Classification — ongoing
(Zloteanu, Cohn & Krumhuber)

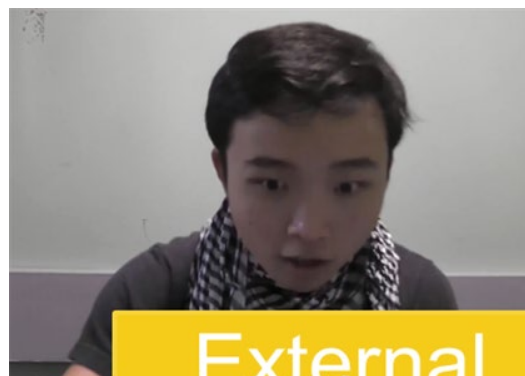


Surprise.D: Dynamic Surprise Expressions Database

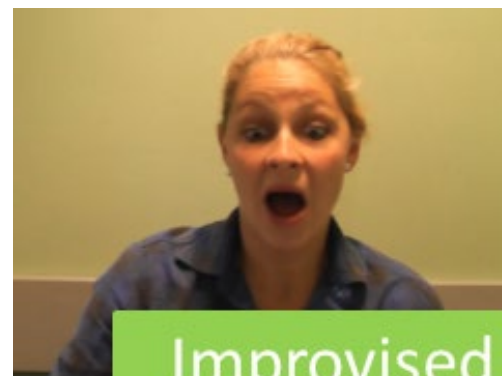
Producing a dynamic emotion database with the mentioned production method techniques,
Allow clearer investigations of emotion perception, recognition, and affective judgements.



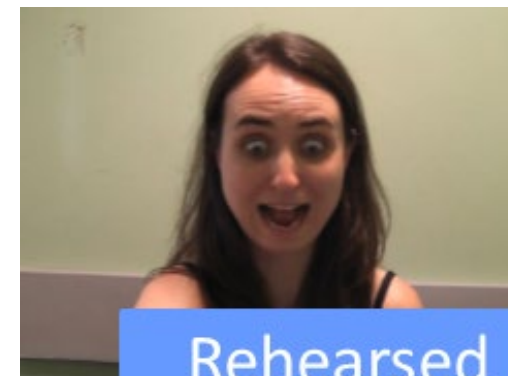
Genuine



External



Improvised



Rehearsed



Dynamic Surprise Database

Videos/Senders

N = 128 (32 Genuine; 32 Rehearsed; 32 Improvised; 32 External)

Decoders

N = 108

Sender behavioural readings:

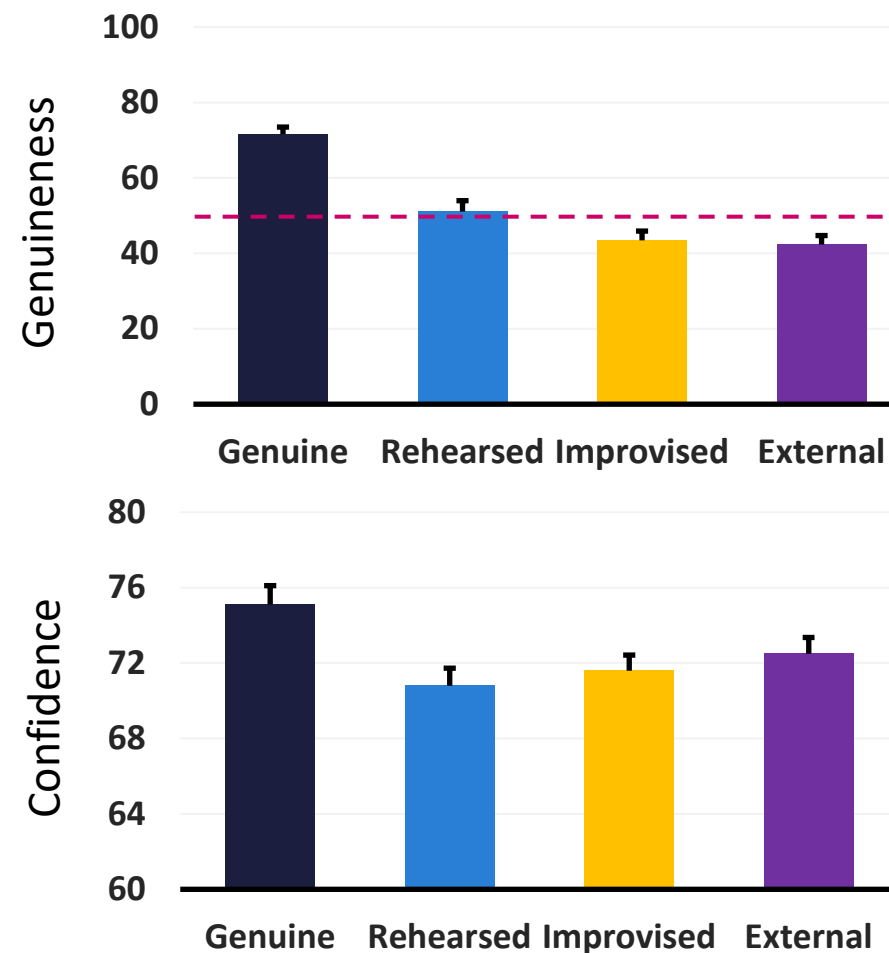
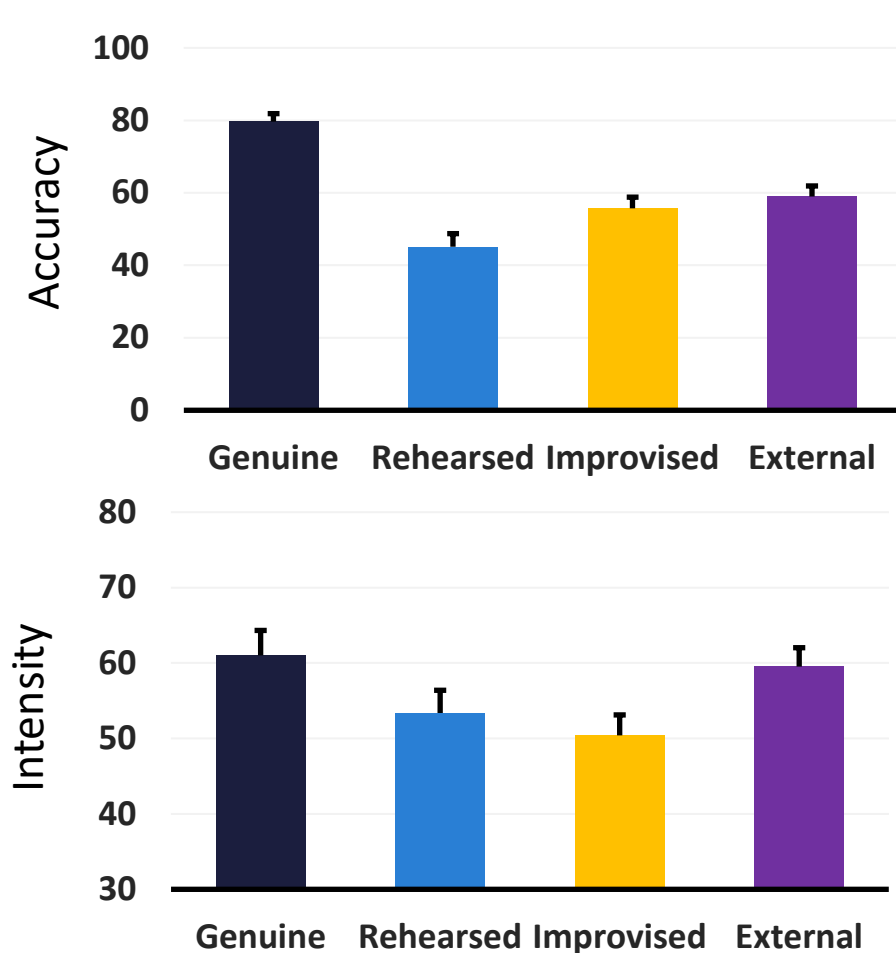
Gender, Age, Mood, Acting Experience, Acting ability (self-rated), Felt emotion (10 point ratings for 6 basic emotions), Confidence in performance

Decoder ratings:

Genuineness, Intensity, Accuracy, Confidence, Trustworthiness, Attractiveness



Dynamic Surprise Database





Concluding remarks

Take home message(s):

Perceptual differences between genuine and deceptive expressions are driven by both the method used to **produce** and **present** stimuli *[helps explain past inconsistencies in research]*

When investigating Emotion Recognition we need for a clear separation between
Classification Accuracy and ***Authenticity Discrimination*** !!!

Together, the findings illustrate the complexity of human emotion production and perception,
the need for ecologically valid stimuli (**dynamic is better**)

Thank you!

Questions?

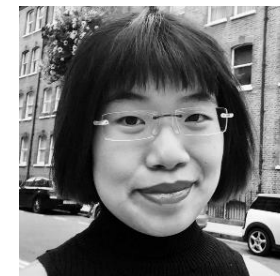
Dr Eva Krumhuber Prof. Daniel Richardson



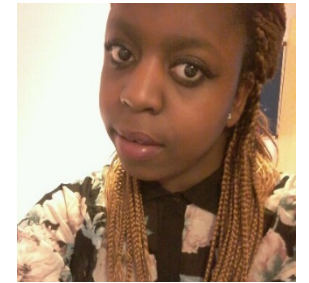
Samantha Chye



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